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Energy statistics

Report of the Secretary-General

Summary

The present report is submitted to the Statistical Commission in compliance with its request at its fortieth session (see E/2009/24, chap. I.A). The report describes the actions taken to implement the Commission's decision to revise the recommendations for energy statistics, provides an overview of the draft revised recommendations and outlines the implementation programme. The draft of the revised recommendations is before the Commission as a background document, entitled "International recommendations for energy statistics", for consideration and adoption. Points for discussion by the Commission are contained in paragraph 38 of the report.

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I. Introduction

1. The Statistical Commission, at its thirty-seventh session (7-10 March 2006), adopted decision 37/108[1] in which it, inter alia, recommended the development of energy statistics as part of official statistics, supported the review of the United Nations manuals on energy statistics, and emphasized the urgent need for harmonization of energy definitions and compilation methodologies and for the development of international standards in energy statistics. This followed a programme review of energy statistics conducted by Statistics Norway and the recommendations of an ad hoc expert group on energy statistics (New York, 23-25 May 2005).

2. In the same decision the Statistical Commission approved the establishment of two complementary working groups to carry out the work: (a) the Oslo Group on Energy Statistics to contribute to the development of improved methods and international standards for national official energy statistics and, in particular, to review and contribute to the updating of the United Nations handbooks and manuals on energy statistics; and (b) the Intersecretariat Working Group on Energy Statistics to enhance international collaboration and coordination.

3. At its thirty-eighth session (27 February-2 March 2007) the Commission, in decision 38/115,[2] took note, inter alia, of the reports of the Oslo Group on Energy Statistics and the Intersecretariat Working Group on Energy Statistics.

4. The Statistical Commission, at its fortieth session (24-27 February 2009) in decision 40/103,[3] endorsed the United Nations Statistics Division strategy to prepare the international recommendations for energy statistics, and suggested that the preparation of the recommendations be considered a matter of high priority.

5. Section II of the present report describes activities carried out in response to the Commission's requests; section III provides an overview of the revised recommendations; section IV outlines the implementation programme; and section V contains points for discussion by the Commission.

II. Activities carried out in response to the decisions of the Commission

A. Revision of the international recommendations for energy statistics

6. The international recommendations for energy statistics (IRES) have been prepared by the United Nations Statistics Division in close cooperation with the Oslo Group on Energy Statistics and the Intersecretariat Working Group on Energy Statistics in accordance with the mandates given to them by the Statistical Commission in decision 37/108. Consultations with specific groups of experts took place during the revision process, such as the Committee of Experts on Environmental-Economic Accounting, the Expert Group on International Economic and Social Classifications and the London Group on Environmental Accounting.

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[1] *Official Records of the Economic and Social Council, 2006, Supplement No. 4* (E/2006/24), chap. I.C.

[2] Ibid., *2007, Supplement No. 4* (E/2007/24), chap. I.B.

[3] Ibid., *2009, Supplement No. 4* (E/2009/24), chap. I.B.

Worldwide consultation

7. A key element of the development of IRES was a worldwide consultation with countries, which was carried out in two stages. The first stage, conducted in May/June 2008, concerned the scope and content of the future recommendations. The provisional draft of IRES was prepared based on the results of the consultation.[4]

8. The second stage of the worldwide consultation on the provisional draft of IRES took place in July/August 2010 to ensure that countries' views were fully taken into account before its finalization. Some 95 responses were received from countries and organizations providing strong support for the provisional draft of IRES. A large number of detailed comments were received and they constituted an excellent basis for the final review of the provisional draft by the United Nations Statistics Division and the Expert Group on Energy Statistics.

Expert Group on Energy Statistics

9. To ensure the active involvement of experts from around the world during all steps of the revision process and to obtain their endorsement of the draft recommendations, the second meeting of the Expert Group on Energy Statistics took place from 2 to 5 November 2010 in New York. During the meeting the Group reviewed the provisional draft of IRES and the detailed comments received during the worldwide consultation and agreed on changes to the provisional draft. The Group endorsed the amended draft of IRES and recommended its submission to the Statistical Commission at its forty-second session in February 2011.

10. The final draft recommendations are contained in the background document entitled "International recommendations for energy statistics" which is submitted to the Commission for adoption. The Expert Group also endorsed the main elements of the implementation programme which are presented in section IV to the present report.

Consultation with other groups of experts

11. As part of the preparation of IRES, consultation and coordination with other groups of experts took place in order to avoid overlap of activities and to ensure consistency of concepts and methodologies. In particular, consultations with the London Group on Environmental Accounting and the Committee of Experts on Environmental-Economic Accounting were carried out on a regular basis to ensure coordination with the preparation and development of the System of Environmental and Economic Accounting for Energy, which is being developed by the United Nations Statistics Division in consultation with the London Group on Environmental Accounting and the Oslo Group on Energy Statistics under the auspices of the Committee of Experts on Environmental-Economic Accounting.

12. The development of a standard classification of energy products was a key element of the preparation of IRES. Thus, the Expert Group on International Economic and Social Classifications was consulted during its meeting held from 1 to 4 September 2009 and as part of the worldwide consultation in order to ensure that the principles and criteria of international standard classifications were

[4] See http://unstats.un.org/unsd/energy/ires/consultation.htm.

followed. The classification contained in the final draft of IRES takes into account the comments received from the Expert Group.

B. Ongoing activities in the energy statistics work programme of the United Nations Statistics Division

13. The annual collection of data on energy statistics continues to be an important element of the work of the Division. While data for most countries are collected directly by the Division, data for some groups of countries are obtained through data-sharing agreements with other organizations. The resulting information is published in two annual publications, the *Energy Statistics Yearbook* and the *Energy Balances and Electricity Profiles*.

14. The *Energy Statistics Yearbook* covers data on production, trade and consumption of energy (solids, liquids, gaseous fuels and electricity), as well as additional information, such as per capita consumption, graphs showing historical trends, and special tables on trade, renewables, waste, refinery capacity and selected energy resources. The *Yearbook* covers data from 224 countries and areas.

15. The *Energy Balances and Electricity Profiles* cover data on production, trade, conversion and consumption for each fuel used, as well as data on production, trade and consumption of electricity, net installed capacity and thermal power plant input. The *Energy Balances and Electricity Profiles* cover data from 190 countries.

16. Efforts are ongoing to harmonize questionnaires and data-collection procedures among the main agencies involved in collection of data on energy statistics for the above-mentioned publications.

17. In addition, the monthly collection of energy statistics continues to be carried out on a regular basis for both oil statistics, within the Joint Oil Data Initiative, and the production of selected energy products for the *Monthly Bulletin of Statistics*.

III. Overview of the revised international recommendations for energy statistics

18. The new international recommendations for energy statistics are the first recommendations that provide a coherent basis for the production of energy statistics in the context of all economic statistics, providing clear links to existing standards. The recommendations are for the first time aligned with approved guidelines for economic statistics, international economic classifications and data aggregation frameworks, while taking into account established practices in the field of energy statistics. In addition, they provide for the first time a set of internationally agreed and harmonized definitions of energy products.

19. To improve comparability and ease of use for data compilers, the international recommendations for energy statistics are aligned in structure and format with international recommendations already approved by the Statistical Commission in other statistical domains, notably the International Recommendations for Industrial Statistics and the International Recommendations for Distributive Trade Statistics. The recommendations also improve comparability by taking into account relevant methodological work in energy statistics, such as the *Energy Statistics Manual*

issued by the International Energy Agency of the Organization for Economic Cooperation and Development and the Statistical Office of the European Union (Eurostat), and the forthcoming System of Integrated Environmental-Economic Accounting.

20. The international recommendations for energy statistics provide data compilers for the first time with a complete set of recommendations covering all aspects of the statistical production process framework, thus covering a broad range of topics from basic concepts, definitions and classifications to data sources, data compilation strategies, energy balances, data quality and statistical dissemination. As such, they contain several elements not covered by the previous United Nations publications on energy statistics: *Concepts and Methods in Energy Statistics, with Special Reference to Energy Accounts and Balances: A Technical Report*;[5] *Energy Statistics: Definitions, Units of Measure and Conversion Factors*[6] and *Energy Statistics: A Manual for Developing Countries*.[7] The new elements contained in the international recommendations are described below.

21. *Energy statistics as part of official statistics*. The international recommendations for energy statistics have been developed to provide a firm foundation for the long-term development of official energy statistics based on the Fundamental Principles of Official Statistics[8] and contain guidance on the underlying concepts, definitions and classifications as well as on data compilation and data dissemination in the context of an integrated approach to economic statistics.

22. *An international standard classification and harmonized definitions of energy products*. Another issue in energy statistics recognized by the Statistical Commission was the lack of harmonized definitions and classifications for energy statistics. The international recommendations for energy statistics reflect the work on harmonized definitions carried out by the Intersecretariat Working Group on Energy Statistics and present the Standard International Energy Classification, which will provide guidance for the collection, compilation and dissemination of energy statistics and will facilitate the integration with other statistical domains. Correspondences with the Central Product Classification (CPC Ver. 2) and the Harmonized System (HS 2007) have been developed as part of the work on the Standard International Energy Classification.

23. *Statistical units and data items*. The international recommendations for energy statistics include recommendations on the statistical units for use in data-collection from both energy and non-energy industries. The reference list of data items for collection (together with their definitions) is provided to reflect the specificity of each energy product and to ensure international comparability of the compiled statistics.

24. *Data collection and compilation*. The international recommendations for energy statistics provide an overview of data sources (e.g., administrative data, surveys, etc.) and data collection and compilation methods relevant to energy

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[5] Statistical Papers, Series F, No. 29, 1982 (United Nations publication, Sales No. 82.XVII.13).

[6] Statistical Papers, Series F, No. 44, 1987 (United Nations publication, Sales No. E.86.XVII.21).

[7] Statistical Papers, Series F, No. 56, 1991 (United Nations publication, Sales No. 91.XVII.10).

[8] *Official Records of the Economic and Social Council, 1994, Supplement No. 9* (E/1994/29), para. 59.

statistics. Given the importance of the legal and institutional framework for the collection and compilation of energy statistics, recommendations are formulated to promote coordinated and efficient frameworks.

25. *Energy balances*. The international recommendations for energy statistics include recommendations on the general principles underpinning the compilation of energy balances. A template for the energy balance is presented in IRES in detailed and aggregated form as a reference.

26. *Data quality assurance and metadata*. The international recommendations for energy statistics describe the main dimensions of energy data quality and provides recommendations on how to set up a national energy data quality framework, including the development and use of indicators of quality and reporting on data quality and metadata.

27. *Dissemination*. Recommendations on the dissemination of energy statistics, in particular on how to address data confidentiality, release schedules and dissemination of metadata, are now included in IRES.

28. *Uses of basic energy statistics and energy balances in the compilation of energy accounts and other statistics*. In addition to concepts and definitions for energy statistics, the International Recommendations for Energy Statistics also list examples of the use of energy statistics and their data items. They present an explanation of the conceptual relationships between balances, on the one hand, and energy accounts of the System of Environmental-Economic Accounting, on the other, in order to assist both compilers and users of energy statistics. Examples of indicators relevant for energy statistics are also provided, as well as a reference to the importance of energy statistics for the calculation of greenhouse gas emissions.

IV. Future work

29. Based on the recommendations of the Expert Group on Energy Statistics, the United Nations Statistics Division, in coordination with other stakeholders in the area of energy statistics, will undertake initiatives to support countries in their efforts to produce comprehensive and comparable energy statistics and to promote energy statistics worldwide. As first steps in the implementation of the international recommendations, several activities are planned: (a) the preparation of the Energy Statistics Compilers Manual; (b) the conduct of regional workshops to familiarize countries with the new international recommendations for energy statistics; and (c) the development of a knowledge base on energy statistics that can be consulted by countries and other users of energy statistics.

30. The Division will also continue to carry out elements of its work programme as described in paragraphs 13-17 above and will work on improving the system of data collection and the dissemination of available data.

A. Preparation of the Energy Statistics Compilers Manual

31. A key element of the implementation of IRES is the preparation of the Energy Statistics Compilers Manual. It is expected that the Manual will contain further and more detailed explanations of the recommendations and provide practical guidance

for compilers by describing best practices applicable under different circumstances. It is expected that the Oslo Group on Energy Statistics plays a key role in the preparation of the Manual.

32. The Energy Statistics Compilers Manual is planned to be finalized by 2013. It is envisaged that the Manual will be periodically reviewed and updated to reflect the new methodological developments and keep data compilers abreast of new country practices. As part of the preparation of the Manual, country practices will be collected and made available through a knowledge-base platform. This platform will be in addition to the existing functions of the United Nations Statistics Division website.

B. Technical assistance

33. To assist countries in the implementation of IRES, the United Nations Statistics Division plans to develop a technical assistance programme in cooperation and coordination with the regional commissions and international and regional organizations. The Division's activities will mainly consist of regional workshops that will focus on the content of the new recommendations and practical issues of their implementation. It is envisaged that the technical assistance programme will cover all stages of the statistical production process from the institutional arrangements, data collection and data processing to data dissemination. Guidance on the compilation of the energy balances (and later on the energy accounts) is expected to be an integral part of the technical assistance programme.

34. These global and regional efforts, as well as additional direct country assistance, will be coordinated with international, regional and supranational agencies active in energy statistics.

35. In addition, the preparation of standard training modules for workshops and online materials is planned to assist countries in the compilation of the questionnaires, energy balances and energy accounts.

C. Data collection by the United Nations Statistics Division

36. Revisions to the United Nations Statistics Division's annual questionnaire on energy statistics are expected to reflect the updated recommendations covered in IRES. In addition, the Division is working towards the development of a joint questionnaire with the International Energy Agency and other relevant organizations in order to reduce response burden and facilitate data exchange.

37. As part of its regular data-collection activities, the Division will request and advocate the provision of data according to the new recommendations and will put increased emphasis on obtaining metadata. In addition, a careful review of the United Nations energy statistics database will take place in order to incorporate elements of the recommendations on dissemination contained in IRES.

V. Points for discussion

38. **The Commission is requested**:

(a) To review and adopt the International Recommendations for Energy Statistics (IRES);

(b) To endorse the main elements of the implementation programme, including the preparation of the Energy Statistics Compilers Manual and additional training material, as well as technical assistance to countries.